(For students admitted in 2022-23 under the 4-year degree)

Extended Major Program in Artificial Intelligence

Extended Major is an add-on element to enrich the existing majors. Students should declare their Extended Major upon admission to HKUST for guaranteed enrollment in the Extended Major with a Major. Students who wish to withdraw from the Extended Major should apply before the last day of the add/drop period in the first regular term of their final year of study.

The Extended Major in Artificial Intelligence is available for combination with Science Majors (BSc programs in Mathematics, Ocean Science and Technology, Physics), any Engineering Majors or Business Majors (BBA/BSc programs in Professional Accounting, Economics, Finance, Global Business, Information Systems, Marketing, Management, Operations Management, Economics and Finance, and Quantitative Finance). It is designed for students with fundamental knowledge in calculus (e.g. MATH 1014/MATH 1020/MATH 1024), statistics (ISOM 2500/MATH 2411) and programming (COMP 1021/COMP 1022P/ISOM 3230), but also open to other students, given that they may be required to take one or two additional courses to acquire relevant foundation.

To graduate with an Extended Major, students must have enrolled in the Extended Major, complete a minimum of 22 credits and all of its requirements, as well as the requirements of the major program of study; and have attained an average grade point of at least 2.15 in courses taken within the Extended Major. All courses counted towards the Extended Major Requirements, as well as those used to fulfill the Major Requirements, will be included in the calculation of the Major Cumulative Grade Average (MCGA).

Students must take all the Extended Major requirement, within which they must complete at least 12 single-counted credits. These 12 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement. For credit transfer, students can transfer a maximum total of 6 credits to the Extended Major program.

Extended Major Requirements

Required Course(s)

				Credit(s) attained
EMIA	2010A		Cross-disciplinary Seminar: Artificial Intelligence	0
EMIA	2020		Cross-disciplinary Design Thinking	3
EMIA/COMP/ MATH			Note: EMIA 4110 OR COMP 4211 OR MATH 4432	3
	EMIA	4110	Practical Machine Learning	3
	COMP	4211	Machine Learning	3
	MATH	4432	Statistical Machine Learning	3
EMIA			Note: EMIA 4990 OR EMIA 4991	0-3
	EMIA	4990	Interdisciplinary Capstone Design	0
	EMIA	4991	Interdisciplinary Capstone Project	3
COMP			Note: COMP 2011 OR COMP 2012 OR COMP 2012H	4-5
	COMP	2011	Programming with C++	4
	COMP	2012	Object-Oriented Programming and Data Structures	4
	COMP	2012H	Honors Object-Oriented Programming and Data Structures	5

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COMP		Note: COMP 2211 OR COMP 3211	3
COMP	2211	Exploring Artificial Intelligence	3
COMP	3211	Fundamentals of Artificial Intelligence	3

Elective(s)

			Minimum credit(s) required
IPO/SSCI/ SENG/SBM		Artificial Intelligence Electives (3 courses from the specified elective list. Students may use at most one course from the same course groups of COMP 4421/ELEC 4130/MATH 4336 and COMP 4462/DASC 3240 to count towards this elective requirement.) [Students taking EMIA 4990 should take a minimum of 9 credits. Student taking EMIA 4991 should take a minimum of 6 credits.]	6-9
EMIA	4120**	Ethics of Artificial Intelligence	3
ACCT	4720	Equity Investment with Machine Learning	3
BIEN	3300	Data Science for Molecular Engineering	3
BIEN	3310**	Data Science for Neural Engineering	3
BIEN	3320	Data Science for Biology and Medicine	3
CENG	3300	Data Science for Molecular Engineering	3
COMP	4221	Introduction to Natural Language Processing	3
COMP	4321	Search Engines for Web and Enterprise Data	3
COMP	4331	Data Mining	3
COMP	4332	Big Data Mining and Management	3
COMP	4421	Image Processing	3
COMP	4451	Game Programming	3
COMP	4462	Data Visualization	3
COMP	4471	Deep Learning in Computer Vision	3
COMP	4641	Social Information Network Analysis and Engineering	3
COMP	4901K	Machine Learning for Natural Language Processing	3
COMP	4901L	Foundations of Computer Vision	3
DASC	3240	Data Visualization in Science	3
DASC	3250	Numerical Methods for Data Analytics in Science	3
DASC	4400	Data Analytics in Information Science	3
ELEC	3810**	Data Science for Neural Engineering	3
ELEC	4130	Machine Learning on Images	3
ELEC	4230	Deep Learning for Natural Language Processing	3
IEDA	3010	Prescriptive Analytics	3
IEDA	3560	Predictive Analytics	3
ISOM	3340	Developing AI Applications	1
ISOM	3360	Data Mining for Business Analytics	3
ISOM	3390	Business Programming in R	3
LIFS	4320	Data Science for Biology and Medicine	3
MATH	3425	Stochastic Modeling	3
MATH	4335	Introduction to Optimization	3

MATH	4336	Introduction to Mathematics of Image Processing	3
PHYS	4058	Information Physics	3
PHYS	4811	Contemporary Applications of Physics: Machine Learning in Physics	1

**Remarks on course(s):		
-	BIEN 3310:	This is a new course to take effect in Fall, 2023-24.
-	ELEC 3810:	This is a new course to take effect in Fall, 2023-24.
-	EMIA 4120:	This is a new course subject to approval.